

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
19 May 2005 (19.05.2005)

PCT

(10) International Publication Number  
**WO 2005/044765 A2**

(51) International Patent Classification<sup>7</sup>: **C07C 17/00**

(21) International Application Number:  
PCT/JP2004/016690

(22) International Filing Date:  
4 November 2004 (04.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2003-379784 10 November 2003 (10.11.2003) JP  
60/524,888 26 November 2003 (26.11.2003) US  
2003-428054 24 December 2003 (24.12.2003) JP  
60/534,114 5 January 2004 (05.01.2004) US

(71) Applicant (for all designated States except US): **SHOWA DENKO K.K.** [JP/JP]; 13-9, Shibadaimon 1-chome, Minato-ku, Tokyo 105-8518 (JP).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **OHNO, Hiromoto** [JP/JP]; c/o Production & Technology Control Department, Gases & Chemicals Division, SHOWA DENKO K.K., 5-1, Ogimachi, Kawasaki-ku, Kawasaki-shi, Kanagawa 210-0867 (JP).

(74) Agents: **AOKI, Atsushi** et al.; A. Aoki, Ishida & Associates, Toranomon 37 Mori Bldg., 5-1, Toranomon 3-chome, Minato-ku, Tokyo 105-8423 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PURIFICATION METHOD, PRODUCTION PROCESS, AND USE OF, 1, 1-DIFLUOROETHANE

(57) Abstract: Crude 1,1-difluoroethane containing at least one compound selected from the group consisting of unsaturated compounds each having two carbon atoms within the molecule and saturated chlorine-containing compounds each having two carbon atoms within the molecule is brought into contact with a zeolite and/or a carbonaceous adsorbent, or crude 1,1-difluoroethane containing hydrogen fluoride and, as impurities, at least one compound selected from the group consisting of unsaturated compounds each having two carbon atoms within the molecule is brought into contact with a fluorination catalyst in a gas phase state. High-purity 1,1-difluoroethane usable as a cryogenic refrigerant, or as an etching gas, can be produced in an industrially advantageous manner.



**WO 2005/044765 A2**